

**Customer No. 33647**

Patent  
Attorney Docket No. ITW7510.095

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of : Joseph C. Schneider  
Serial No. : 10/711,029  
Filed : August 18, 2004  
For : PLASMA TORCH HAVING A QUICK-CONNECT  
RETAINING CUP  
Group Art No. : 3742  
Examiner : Mark H. Paschall

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**CERTIFICATION UNDER 37 CFR 1.8(a) and 1.10**

I hereby certify that, on the date shown below, this correspondence is being:

**Mailing**

- deposited with the US Postal Service in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

**37 CFR 1.8(a)**

- with sufficient postage as first class mail       As "Express Mail Post Office to Addressee" Mailing Label No.

**Transmission**

- transmitted by EFS-WEB addressed to Examiner Mark H. Paschall at the Patent and Trademark Office.

Date: July 21, 2006

/Robyn L. Templin/

Signature

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION OF JOSEPH SCHNEIDER UNDER 37 C.F.R. §1.131**

I, Joseph C. Schneider, being duly sworn, aver:

1. That I am an inventor named in the above-referenced Patent Application;
2. That I have reviewed the claims of the above-identified Patent Application;
3. That I conceived in the United States, prior to April 7, 2003, the effective date of cited U.S. Patent Application 2004/0200809, the invention as set forth in the aforementioned claims, and in particular, a plasma torch assembly having a torch body having a handle portion and a tip portion, an electrode disposed in the tip portion of the torch body, and a retaining cup

constructed to encircle the electrode in the torch body and connect to the tip portion with less than approximately 180 degrees rotation relative to the torch body;

4. That I conceived in the United States, prior to April 7, 2003, the effective date of cited U.S. Patent Application 2004/0200809, the invention as set forth in the aforementioned claims, and in particular, a plasma cutter having a power source configured to condition power into a form usable by a plasma cutting process, a torch connected to the power source and configured to effectuate the plasma cutting process, an electrode disposed in the torch, and a cup having a twist-lock quick-connect mechanism removably connecting the cup to the torch and constructed to maintain an operable position of the electrode and prevent overtightening of the cup to the torch;

5. That I conceived in the United States, prior to April 7, 2003, the effective date of cited U.S. Patent Application 2004/0200809, the invention as set forth in the aforementioned claims, and in particular, a plasma torch assembly having a torch body, an electrode, and means for connecting the electrode to the torch body having a fully engaged position with less than one complete rotation of the means from an unlock position to a lock position;

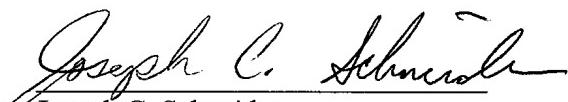
6. That I conceived in the United States, prior to April 7, 2003, the effective date of cited U.S. Patent Application 2004/0200809, the invention as set forth in the aforementioned claims, and in particular, a plasma torch consumable having a quick connect cup having a partial-turn engagement mechanism engageable with another engagement mechanism of a plasma torch;

7. Attached as Exhibit A is a copy of my disclosure to my employer that was prepared prior to April 7, 2003 and evidencing this invention;

8. That from prior to April 7, 2003 to August 18, 2004, the filing date of the above-referenced Patent Application, I diligently worked toward reducing the aforementioned invention to practice and worked with patent counsel in the preparation of a patent application of the claimed invention; and

9. That the statements made herein are of my own knowledge and are true and made on information and belief that are believed to be true.

I acknowledge that any willful false statements and the like made herein are punishable by fine or imprisonment, or both, and may jeopardize the validity of the application or any patent issuing thereon.

  
Joseph C. Schneider

Date: 7-11-06



## RECORD OF INVENTION

**1. Title of invention:**

Quick connect retaining cup for plasma torches

**2. Inventor(s) full name, address, and citizenship:**

Joseph C. Schneider  
1618 Hickory Hollow Lane  
Menasha WI 54952

**3. Place, date and circumstance of original conception:**

[REDACTED]  
Discussion on how to improve the current plasma cutting torches to make them more reliable and user friendly

**4. When was first sketch or drawing and written description made: How are they identified: Where are they now**

This is the first written description

**5. When was the first explanation of the invention made to others: Where: and to whom?**

Explained to Ken Herres [REDACTED]

**6. If the invention was first tested for operation, where was the test conducted: who was present: and how can a record of this test be identified and found?**

None

**7. Has the invention been (a) publicly disclosed: (b) placed in commercial use: (c) sold or offered for sale: (d) described in a Printed publication?**

No

**8. If yes, describe the first occurrence of any of (a) to (d) respectively, give dates, places and identification.**

**9. If no, are any of (a) to (d) contemplated? Which item and when?**

No

**10. Signature of inventor(s) who completed this form:** \_\_\_\_\_

MILLER Electric Mfg. Co.

Inventor(s)

1

Date: \_\_\_\_\_

Witnessed and understood

Witnessed and understood

\_\_\_\_\_  
(not an inventor)

\_\_\_\_\_  
(not an inventor)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

MILLER Electric Mfg. Co.

Invention Disclosure:

Title: Quick connect retaining cup for plasma torches

1. Subject of Invention: (State what the invention relates to or deals with generally and specifically.)

Plasma cutting systems. All plasma cutting systems have consumables of the cutting process. One of these consumable is called a retaining cup or retaining cap. These consumables provide a means to hold all the other consumables in place. Typically, the cup/cap have threads to engage the torch head and provide a means for tightening the cup/cap and the rest of the consumable in place.

The subject of this invention is simply an alternative means for connecting and tightening the cup/cap in place on the torch head. Instead of many threads, a single 1/2 turn thread engagement mechanism can be incorporated. An example of this type of device is a Cam-Lock or Dinse connector that is commonly used to connect the + and/or - studs of a welder to the workpiece.

Inventor(s)

2

Date: \_\_\_\_\_

Witnessed and understood

Witnessed and understood

(not an inventor)

(not an inventor)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

MILLER Electric Mfg. Co.

Invention Disclosure:

Title: Quick connect retaining cup for plasma torches

2. Background: (Describe what is now the closest known prior art and explain how this invention improves thereon. That is, give adequate background information to enable one to appreciate the problems that existed and how, in general, your invention solves these problems.)

Inventor(s)

3

Date: \_\_\_\_\_

Witnessed and understood

Witnessed and understood

\_\_\_\_\_  
(not an inventor)

\_\_\_\_\_  
(not an inventor)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

MILLER Electric Mfg. Co.

Invention Disclosure:

Title: Quick connect retaining cup for plasma torches

3. Description: (Describe the invention in detail, including an explanation of all parts and how the invention works and state which parts and features are novel. The detailed description should refer by reference characters to an attached graphic illustration of the invention, such as separate sketches, drawings or photographs. If necessary, attach additional sheets. The signature and information at the bottom of the page must be added to each sheet and to each separate drawing, sketch or photograph.)

On a plasma cutting torch, the consumables of the plasma cutting process are all held in place by a component called a retaining cup or cap. The cup typically has threads that allow it to be tightened down (see attached figure). Over tightening the cup will typically cause problems for the end user that will result in the torch not operating correctly or not at all.

The invention here is to replace the threads with a twist-lock mechanism (e.g. Dinse style connector) so that the cup cannot be over tightened and so it is quick and easy compared to threaded cups.

Inventor(s)

4

Date: \_\_\_\_\_

Witnessed and understood

Witnessed and understood

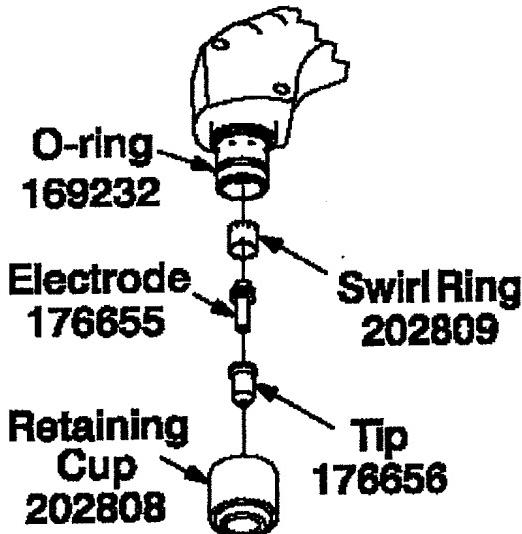
(not an inventor)

(not an inventor)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

## Consumables



## ! CAUTION

**FAILURE TO REPLACE WORN TIP OR ELECTRODE OR OPERATION WITHOUT THEM will ruin torch.**

- Turn off power before checking torch parts.
- Check before each use and hourly during operation.

Inventor(s)

5

Date:

Witnessed and understood

Witnessed and understood

(not an inventor)

(not an inventor)

Date:

Date:

MILLER Electric Mfg. Co.

Invention Disclosure:

Title: Quick connect retaining cup for plasma torches

4. Advantages: (List and explain the advantages in the order of their importance.)

- 1) The cup can be taken off and put back on much faster (1/2 turn vs. 6 or more turns)
- 2) The cup cannot be over tightened, which is a major source of problems. Over tightening can cause the torch to operate incorrectly or not at all. This is a source of many service calls.

Inventor(s)

6

Date: \_\_\_\_\_

Witnessed and understood

Witnessed and understood

(not an inventor)

(not an inventor)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

MILLER Electric Mfg. Co.

Invention Disclosure:

Title: Quick connect retaining cup for plasma torches

5. Alternatives: (Describe all possible variations from the detailed description.)

Keep the threads, but put a stop so that the cup/cap cannot go past a certain point. This alternative has been suggested many times in the past but never implemented.

Inventor(s)

7

Date: \_\_\_\_\_

Witnessed and understood

\_\_\_\_\_  
(not an inventor)

Date: \_\_\_\_\_

Witnessed and understood

\_\_\_\_\_  
(not an inventor)

Date: \_\_\_\_\_